NEW SPECIES OF ICHNEUMON-FLIES AND TAXONOMIC NOTES

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The following pages contain the descriptions of new species of Ichneumonidae, Braconidae, and Aulacidae from the Nearctic and oriental zoological regions, together with notes on previously described species and genera and the proposal of a new generic name for a preoccupied name.

Family ICHNEUMONIDAE

AMBLYTELES VELOX (Cresson) (new combination)

Ichneumon velox Cresson, Proc. Ent. Soc. Phila., vol. 3, 1864, p. 185; Trans. Amer. Ent. Soc., vol. 6, 1877, p. 178.—Provancher, Faune Ent. Can., Hym., 1883, p. 287; female.

Ichneumon puerilis Cresson, Trans. Amer. Ent. Soc., vol. 1, 1867–8, p. 296; vol. 6, 1877, p. 158.—Provancher, Faune Ent. Can., Hym., 1883, p. 274; male. (New synonymy.)

Ichneumon occidentalis Harrington, Can. Ent., vol. 26, 1894, p. 210, female. (New synonymy.)

Ichneumon mellicoxus Provancher, Nat. Can., vol. 7, 1875, p. 48, male. (New synonymy.)

Phygadeuon apicatus Provancher, Nat. Can., vol. 7, 1875, p. 180, female.

Phygadeuon cressoni Provancher, Nat. Can., vol. 8, 1876, p. 318, female.

The synonymy of the two Cresson species is based on a series including both sexes reared by Karl Schedl from the hemlock looper in September, 1928, at Footes Bay, Ontario. The synonymy of *Ichneumon occidentalis* Harrington is based on a homotype (Gahan), which was also compared by Gahan with the types of *Phygadeuon apicatus* Provancher and *P. cressoni* Provancher, which two species were synonymized by Provancher himself. Provancher also synonymized his *Ichneumon mellicoxus* with *I. puerilis* Cresson.

ANISOBAS TEXENSIS (Ashmead) (new combination)

Cryptus texensis Ashmead, Proc. U. S. Nat. Mus., vol. 12, 1890, p. 410.

The type is female, not male as stated by Ashmead. There is also a male from Cypress Mills, Tex., which differs in no way except sexually from the type.

The species is very close to *A. nearcticus* Cushman; perhaps the two are the same, but both the Texan specimens have the fourth tergite broadly white margined and there are minor differences in sculpture and venation.

CRYPTUS PAITENSIS (Cockerell) (new combination)

Amblyteles paitensis COCKERELL, Entomologist, vol. 60, 1927, p. 158.

The male holotype of this species has been presented by its author to the National Museum and has been listed as Cat. No. 41588, U.S.N.M.

It differs from typical *Cryptus* Fabricius only in lacking the apical carina of the propodeum, this being represented only by small apophyses, and in having the propodeum behind the basal carina coarsely reticulate rugose.

The same sort of variation occurs in the Neotropical genus *Trachysphyrus* Haliday, which is really distinguishable from *Cryptus* only by the metallic blue, green, and copper colors exhibited by its species.

CHROMOCRYPTUS MESORUFUS, new species

Female.—Length 7.5 mm. Tips of antennae, right front tarsus, left middle leg except coxa, and apical joints of both hind tarsi missing.

Structurally much like the genotype, *Chromocryptus planosae* (Fitch) with the sculpture perhaps a little coarser, but very distinct in color.

Head black with following white markings: Orbits except narrow interruption in malar space, a sinuate mark across face, disk of clypeus and of mandible, and an incomplete annulus occupying the dorsal half of flagellar joints 7 to 9 and part of 6 and 10. Thorax black with white as follows: Anterior and humeral margins of pronotum; lines in notauli; basal part of scutellum, emarginated by anterior extension of apical black; postscutellum; tegulae and radices; spots on mesopleurum below both front and hind wings, along prepectal suture and above middle coxae; a longitudinal mark below sternaulus; apex of metapleurum; and two longitudinal marks on posterior face of propodeum including the apophyses; front and middle coxae and trochanters black and white, these legs otherwise ferruginous with tarsi infuscate; hind leg ferruginous, knee and apex of tibia infuscate, tarsus black with second and third joints and apex of first below, white; wings hyaline with blackish venation. Abdomen black with all tergites broadly margined with white, first segment furruginous.

Type locality.—Cuernavaca, Morelos, Mexico.

Type.—Cat. No. 41990, U.S.N.M.

One female reared by C. Chambert and received from Dr. Alfons Dampf, chief entomologist of Mexico. The host record is open to

doubt. The specimen is said to have been reared from either *Anastrepha ludens* Loew or *A. straita* Schiner.

RHEMBOBIUS ABDOMINALIS (Provancher) (new combination)

Phygadeuon abdominalis PROVANCHER, Nat. Can., vol. 6, 1874, p. 280; vol. 11, 1879, p. 73; Faune Ent. Can., Hym., 1883, p. 319; Addit. Faune Ent. Can., Hym., 1886, p. 46.

In the collection of the National Museum there are 14 females and 6 males as follows: 1 female, Quebec (homotype, Rohwer); 1 female, Hartford, Conn.; 6 females, Colorado, including 4 from El Paso County reared from decayed cottonwood; 5 females and 2 males, Puyallup and Sumner, Wash., reared from the bulb fly, *Merodon equestris* Fabricius; 1 female, Santa Cruz, Calif., reared from the smaller bulb fly, *Eumerus strigatus* Fallen; 1 male, Narrows, Mount Desert, Me. (C. W. Johnson, collector); 1 male, Westfield, N. Y. (R. A. Cushman, collector); and 2 males, Harney Peak and Waubay, S. Dak.

All of the specimens from Washington, the one from California, one from South Dakota, and all but one of the Colorado specimens differ from the typical form in having the hind femora and tibiae entirely red; the western females and one from Colorado differ further in the lack of the white antennal annulus, though a few show traces of white at the base of one or more joints; in the Colorado female that has the apices of the hind femur and tibia black the extent of black is reduced and in addition the front and middle femora are not at all black as in the typical form; the far western males also differ from the typical eastern form in their lack of white markings on the front and middle coxae and trochanters and in a reduction of the extent of white markings on the face, clypeus, and scape; one of the Dakota specimens is typical in these respects while the other is intermediate.

The species is very closely allied to the European *R. quadrispinus* (Gravenhorst), which, however, has the abdomen black beyond the third segment.

TRICHOCRYPTUS ATLANTICUS, new species

Very closely allied to *bicolor* Cushman, with the description of which it agrees except as follows:

Female.—Length 8 mm.; antennae 4.25, ovipositor sheath 2 mm.

Eyes not distinctly convergent below; propodeum in profile slightly convex above; petiolar area not distinctly shorter than combined areola and basal area. Scutellum white apically; tarsi infuscate.

Type locality.—Bladensburg, Md.

Type.—Cat. No. 41991, U.S.N.M.

One female taken June 23, 1916, by R. C. Shannon.

HEMITELES HUNGERFORDI, new species

In Foerster's key to the genera of the Hemiteloidae it runs directly to *Philonygmus* Foerster, a genus without included species; and agrees well with all characters except that the temples are rather strongly sloping.

Female.—Length 4.5 mm.; antennae 3.5 mm.

Head a little more than twice as broad as thick; temples convexly sloping, the convexity continuous with that of the eyes; temples, cheeks, and vertex behind ocelli shining and faintly alutaceous; frons opaque, with a distinct median groove; ocelli small, in diameter less than length of ocell-ocular line, which is about half as long as postocellar line; eyes slightly divergent below; face about twice as broad as long, opaque punctate; clypeus deeply separated from face, nearly as long as interfoveal line, apically, inflexed, truncate, more shining than face; malar space as long as basal width of mandible, antennae thickened beyond middle, flagellum 17-jointed, basal joints slender, subapical joints nearly twice as long as thick. Thorax neither stout nor slender; pronotum finely subopaquely punctate, with a deep transverse groove across collar; mesoscutum subopaque, notauli very deep, confluent posteriorly; scutellar fovea very deep, broad and foveolate; scutellum opaque, convex, without lateral carinae; mesopleurum and sternum very finely punctate, subopaque, sternauli sharply defined, speculum subpolished; metapleurum and propodeum very finely punctate opaque, areolation complete, carinae very strong, especially the apical carina, areola hexagonal, broader than long, spiracle very small round, midway between pleural and lateral carinae; legs slender, hind basitarsus fully twice as long as second joint, third and fifth joints subequal; stigma broad, radius beyond middle; radial cell short, not longer on metacarpus than stigma; areolet large, entirely open at apex; discocubitus broken; nervulus slightly postfurcal; postnervulus nearly straight with subdiscoideus slightly below middle; abscissula a half longer than intercubitella; nervellus broken slightly below middle. Abdomen, except first segment, polished, second tergite very faintly alutaceous; first segment in profile strongly curved, thicker in middle than at apex, from above scarcely more than twice as broad at apex as at base, spiracles in middle, lateral and dorsal carinae strong to apex, with a groove between dorsal carinae, dorsal surface subopaque, lateral surfaces opaque; abdomen beyond first segment broadly oval, epipleura very broad, inflexed; ovipositor sheath slender, about as long as first segment.

Black; wings hyaline with dark venation; mandibles reddish; legs, except coxae, testaceous, tarsi apically blackish.

Male.—Essentially like female, but more slender, second tergite more distinctly sculptured, and flagellum stout filiform, not thickened beyond middle.

Type locality.—Burt Lake, mouth of Maple River, Mich.

Host.—*Gyrinus* species (cocoon).

Type.—Cat. No. 41992, U.S.N.M.

Two females and three males reared by H. B. Hungerford, July 23–26, 1927.

This is the third ichneumonid parasite recorded from *Gyrinus*. The others are the European *Hemiteles argentatus* Gravenhorst (=*Hemiteles gyrini* Parfitt) and the American *Gausocentrus gyrini* Ashmead. The first is unknown to me but is amply distinct from *hungerfordi* in color and sculpture. The second, Davis has already indicated, belongs to the Hemitelini, though he assigned it to no genus. It is congeneric with *hungerfordi*, though amply distinct specifically. In *Hemiteles* Gravenhorst it is preoccupied by *gyrini* Parfitt. A new name is assigned to it below.

HEMITELES GYRINOPHAGUS, new name

Gausocentrus gyrini Ashmead, Can. Ent., 1894, p. 25 (not *Hemiteles gyrini* Parfitt).

(*Gausocentrus*) Hemitelini *gyrini* Davis, Trans. Amer. Ent. Soc., vol. 24, 1897, p. 342.

Genus MACROGROTEA Brethes

Macrogrotea Brethes, Rev. Chilena de Hist. Nat., vol. 20, 1916, p. 84. Type.—*Pimpla gayi* Spinola.

Labenidea Rohwer, Proc. U. S. Nat. Mus., vol. 57, 1920, p. 413. Type.—(*Grota superba* Schmiedeknecht)=*Macrogrotea gayi* (Spinola), according to Brethes (new synonymy).

METACOELUS CAVICOLA, new species

A typical *Metacoelus* Foerster with no apparent modification to adapt it for cave life unless the white ocelli be such.

In general form and structure it is very like *femoralis* (Geoffroy), but it is at once distinguishable by its largely black hind coxae and femora.

Female.—Length 7 mm.

Head in profile nearly equilaterally triangular, the combined face and clypeus moderately convex, protrusion of upper margin of face comprising about one-third total thickness of head; face densely punctate, clypeus more sparsely so; frons minutely opaquely punctuate, medially slightly elevated; diameter of lateral ocellus barely as long as ocell-ocular line; malar space fully twice basal width of mandible; antennae as long as combined length of head, thorax and first abdominal segment; flagellum tapering from base to apex, the apical joint less than half as thick as the basal; first joint nearly two-thirds as thick at apex as long, second and following joints transverse, middle

joints quadrate, subapical joints slightly longer than thick, apical joint distinctly elongate. Humeral margin of pronotum finely punctate, opaque; mesoscutum and scutellum shining, with rather coarse distinct punctures, notauli represented by deep pits anteriorly from which very faint impressions converge backward to a shallow median impression; thorax laterally mostly highly polished, anterior half of mesopleurum and mesosternum finely punctate; propodeum, except the polished areola, finely punctate, areola not separated from basal area, the combined area more than twice as long as broad at middle, where the costulae are received; hind femur hardly twice as long as deep. Abdomen very finely and rather densely punctate.

Black with cinereous pubescence, longest on face, sternum and coxae; mandibles, upper margin of face, and antennae ferruginous; front and middle legs reddish stramineous, middle coxae and femora more or less brownish; hind coxae except apex and femur except extremities black, hind leg otherwise testaceous; wings yellowish hyaline especially basad of stigma, where the venation is also yellow, stigma and apical venation brownish; venter pale brownish yellow; sheath of ovipositor whitish.

Type locality.—Batu Caves (Dark Cave), Selangor, Federated Malay States, 800 feet from entrance.

Type.—Cat. No. 41102, U.S.N.M.

Four females, all taken by C. Dover.

PANISCUS PLATYPES, new species

Remarkable chiefly for its very distinctly flattened tarsi. In my key to North American species[1] it runs best to *pallens* Cushman, but is distinctly larger, the abdomen and legs stouter, and the tarsi much more strongly flattened.

Female.—Length 18 mm., antennae (broken).

Temples rather strongly convex and only a little narrower than eyes; ocelli large and nearly contiguous with the eyes; face hardly as long as broad, fully a half broader than frons, minutely opaquely shagreened, sparsely punctate, strongly elevated medially; clypeus more than half as long as interfoveal line with basal groove arched above level of foveae, weakly emarginate at apex, weakly convex, sculptured as face but with punctures larger and sparser; malar space short but distinct; antennae broken, flagellum apparently tapering from base to apex, the twenty-second joint about twice as long as thick. Thorax very finely and densely punctate opaque, the pleura less densely so and shining; notauli long, shallow; scutellum margined to apex, the space between the carinae nearly two-thirds as broad at apex as at base; metapleurum finely striato-punctate; pro-

[1] Proc. U. S. Nat. Mus., vol. 64, Art. 20, 1924, p. 23.

podeum transversely striate, apophyses strong; areolet sessile, subquadrangular, second recurrent postfurcal with respect to second intercubitus, almost uniformly curved; nervulus postfurcal by hardly half its length; postnervulus broken slightly below upper third; nervellus broken at a right angle, upper abscissa three-fourths as long as lower; legs rather stout; hind femur four-fifths as long as tibia; tibiae sparsely spinose; tarsi stout, apical three joints strongly flattened, fifth joint of middle tarsus longer than third and only a little shorter than second; claws large with about 12 coarse teeth. Abdomen stout; first tergite barely three and a half times as long as broad at apex, spiracles very slightly beyond basal third; second much less than twice as long as broad at base, its sides diverging; ovipositor sheath nearly as long as first segment.

Reddish testaceous, abdomen darker, head and thorax (especially along sutures and notauli) tinged with yellow; stemmaticum yellow with a brownish stain between the posterior ocelli; antennae concolorous; prescutum with a narrow median brownish stripe; legs concolorous, front legs anteriorly and all tarsi paler; wings yellowish hyaline, stigma and costa testaceous, veins otherwise dark; sheath reddish fuscous.

Type locality.—Cabin John, Md.

Type.—Cat. No. 41993, U.S.N.M.

One female taken July, 1917, by R. M. Fouts.

Genus HYMENDERLEINIA, new name

Enderleinia CUSHMAN, Proc. U. S. Nat. Mus., vol. 64, Art. 20, 1924, p. 6 (not Schmidt, 1907).

Opheltoidcus ENDERLEIN, Stettin. Ent. Ztg., 1912, p. 107 (not Ashmead, 1900).

Genus SESIOPLEX Viereck

This genus was originally based on the single character of the depressed first abdominal segment, by which character it was said to differ from *Campoplex* Gravenhorst (=*Ormogus* Foerster).

In his key to genera of the Campopleginae [2] Viereck ascribed several other characters to the genus, and (p. 177) assigned to it four species besides the genotype. Of these *heliae* (Ashmead) is a *Sagaritis* Holmgren. The other two previously described species, *depressus* Viereck and *validus* (Cresson), will run in Schmiedeknecht's (Opusc. Ichn.) key to *Tranosema* Foerster, failing to stop at (*Omorgus*) = *Campoplex* because of the more or less distinctly broken nervellus. The same character prevents their running to *Eulimneria* Schmiedeknecht.

[2] Can. Ent., vol. 57, 1925, p. 176.

As I have shown in my description of *Angitia galleriae*[3] the depressed petiole is, in some cases at least, of not even specific significance. The same is true to some extent of the impression of the petiolar area of the propodeum, the fracture of the nervellus, and the depth of the lateral furrows on the petiole. Most of the genera in the Campopleginae are based on such trivial and variable characters as these, and the classification of the group would be much simplified and brought nearer the truth were many of the genera suppressed. It is my opinion that there is no generic difference between *Campoplex*, *Eulimneria*, *Sesioplex*, *Angitia* Holmgren, *Idechthis* Foerster, and *Campoletidea* Viereck, while *Dioctes* Foerster differs only in its lack of the alar areolet. For the time being, however, I shall consider them distinct genera.

This discussion is gone into in order to explain the generic placement of the following new species. It may have been described by Viereck in his "A Preliminary Review of the Campopleginae in the Canadian National Collection," Ottawa; but, because of his use of so many trivial characters in his generic keys, I have found it very difficult to use them, and in the present instance impossible to place the species in any genus satisfactorily.

SESIOPLEX CANADENSIS, new species

Female.—Length, 7.5 mm.; antennae 4 mm.

Head finely coriaceous or shagreened, the face, clypeus, and frons finely, closely punctate; temples somewhat sloping, straight for most of their length, then abruptly turned inward to the occipital carina, the cephalo-caudad length nearly as great as short diameter of eye; diameter of lateral ocellus very nearly as long as ocell-ocular line; eyes slightly emarginate opposite antennae; face very slightly narrower than frons; malar space hardly two-thirds as long as basal width of mandible; clypeus broad, not at all separated medially, its apical margin broadly submucronate medially; antennae stout, flagellum with about 33 joints, those beyond apical third transverse. Thorax short ovate, sculptured like the head but even more opaque, even the speculum entirely opaque; pronotum somewhat rugulose in lower lateral angle; scutellum strongly convex; propodeum very finely rugulose, the petiolar area somewhat impressed; legs moderately stout, hind basitarsus as long as rest combined, inner calcarium reaching slightly beyond middle of basitarsus; areolet narrowly sessile to subpetiolate; recurrent vein beyond middle; nervulus strongly inclivous; postnervulus broken distinctly below middle; exterior angle of second discoidal cell strongly acute; nervellus weakly broken near bottom, somewhat inclivous, discoidella wanting. Abdomen

[3] Proc. U. S. Nat. Mus., vol. 58, 1920, p. 266.

subopaque, stout; petiole distinctly though not strongly depressed, distinctly channelled laterally, the channel posteriorly pitlike; postpetiole broad, depressed; second tergite about as broad at apex as long, gastrocoeli subdistinct, oval; ovipositor sheath hardly twice as long as first segment.

Black; mandibles, palpi, tegulae and legs ferruginous; mandibles more or less black basally; coxae black, front and middle pairs ferruginous below; hind tibia obscurely pale basad of middle above; wings pale infumate, radices yellowish; abdominal venter brownish.

Male.—Essentially like female. The antennae are broken but are evidently nearly as long as body with all joints distinctly longer than thick.

Type locality.—Edmonton, Alberta.

Type.—Cat. No. 42159, U.S.N.M.

Two females and one male from the type locality, May 12–14, George Salt; and three females from St. Agatha, Quebec, May 26, 1929, and one female from Timmins, Ontario, May 15, 1929, the last four collected by the French Ichneumonologist, André Seyrig. One of the paratypes is returned to Mr. Seyrig for deposit in the Museum National d'Histoire Naturelle, Paris, and another is deposited in the Canadian National Collection, Ottawa, Ontario.

PRISTOMERUS BAUMHOFERI, new species

Closely related to *agilis* (Cresson) but at once distinguishable in the female by its pale yellow frontal orbits and apical margins of tergites 3 to 7; and in the male by the parallel eyes and smaller ocelli.

Female.—Length 5–6.5 mm. (type 5.5 mm.).

Head transversely oval; eyes parallel; face medially elevated, sparsely punctate; clypeus strongly convex, apically truncate, suture straight; malar space hardly two-thirds basal width of mandible; temples narrow, strongly convexly receding; diameter of ocellus and ocell-ocular line equal; antennae a little more than half as long as body. Thorax less than twice as long as deep, finely punctate; prothorax subpolished, rugulose in impression; notauli deep but broadly impressed anteriorly, obsolete posteriorly; scutellum strongly convex; propodeum finely rugulose-punctate, areolet pentagonal, twice as long as broad, much shorter than petiolar area; radius weakly curved at apex, postnervulus broken slightly above middle; legs rather slender, femoral tooth at about apical third, small to obsolete. Abdomen rather slender, postpetiole and second tergite finely longitudinally aciculate; other tergites finely shagreened, the second somewhat longitudinally so basally; second a little more than three times as long as broad at base; ovipositor sheath slightly longer than combined first and second tergites.

General color ferruginous; occiput and stemmaticum brown; face, mouth parts, malar space, and anterior orbits yellow, the face somewhat stained with reddish; scape and pedical pale in front, flagellum black; notauli and scutellum paler than surrounding areas, lateral portions of postscutellum and base of propodeum brown; anterior margin of pronotum, tegulae and radices whitish; wings hyaline, venation dark brown, stigma broadly pale along costal margin; front and middle coxae, trochanters and tarsi and apices of their femora stramineous, these legs otherwise pale testaceous: hind legs testaceous, basal joint of trochanter piceous, apex of femur stramineous, tibia and tarsus fuscous, the tibia indefinitely paler in middle; second tergite somewhat piceous especially toward base, tergites 3 to 7, pale yellowish at apex.

Male.—Essentially like female but with both pale and dark markings more extensive; face and pronotum entirely yellow; prescutum anteriorly and lateral lobes in middle brown; front and middle tibiae and hind coxae apically and below stramineous; hind femur reddish piceous, pale at base and apex; abdomen with all tergites piceous with apical margins whitish.

Host.—*Rhyacionia frustrana* var. *bushnelli* Busck.

Type locality.—Halsey, Nebraska.

Type.—Cat. No. 41994, U.S.N.M.

Five females and one male reared from the host by L. G. Baumhofer, under Hopkins U. S. No. 17508.

CREMASTUS GRACILIPES Cushman

Three rearings of this species from the type-host (*Dicymolomia julianalis* Walker) have added three females and five males (the latter sex undescribed) to the national collection. These are as follows: 1 of each sex reared by E. Daecke at Rockville, Pa., on June 22, 1915; 1 female and 4 males reared September 22, 1909, at Collins, Pa.; and 1 female reared March 14, 1924, at Smith's Point, Tex. There is also an apparently indistinguishable female reared from the Oriental Peach Moth (*Laspeyresia molesta* Busck) at New Brunswick, N. J., by Alvah Petersen.

The females show a variation in color from that of the type and a phase in which the red color of the head is replaced by yellow and the thorax and abdomen are much more extensively black.

The male shows the same sort of variation in color with frequently the entire lateral face of pronotum, the notauli and more or less of the mesopleurum yellow; also the legs are paler, especially basally.

In my key the male runs to couplet 3, where it agrees with neither alternate entirely. The diameter of the lateral ocellus is about equal

to the ocell-ocular line and the malar space is very slightly shorter than basal width of mandible.

In both sexes the stigma is broadly pale along its anterior margin.

CREMASTUS CARPOCAPSAE, new species

Very closely related to *C. gracilipes* Cushman, from which the female is distinguished with difficulty, though the male is quite obviously distinct.

Female.—Differs from *gracilipes* apparently only in the uniformly brown stigma; the slightly broader abdomen, the second tergite being hardly four times as long as broad at base; the slightly larger ocelli, the diameter of which is fully as long as the ocell-ocular line; and the shorter malar space, which is only about two-thirds as long as the basal width of mandible.

Color varying as in *gracilipes* as described above with hind femora in the dark form somewhat infuscate.

Male.—Runs to couplet 3 in my key [4] as does *gracilipes* male. From *gracilipes* it differs principally by having the malar space hardly two-thirds as long as the basal width of mandible, the diameter of a lateral ocellus much longer than ocell-ocular line, the abdomen broader, the stigma uniformly colored, and the hind legs infuscate.

Host.—*Carpocapsa pomonella* (Linnaeus).

Type locality.—Lawrence County, Ohio.

Type.—Cat. No. 41995, U.S.N.M.

Seven females and two males in rather poor condition received from L. A. Stearns and reared by him August 4 to September 9, 1927.

CREMASTUS (ZALEPTOPYGUS) HARTII Ashmead (new combination)

Through the kindness of Dr. T. H. Frison, of the Illinois State Natural History Survey, in bringing them to Washington I have been able to examine the types of this species. Both sexes run in my key to *tetralophae* Cushman, but differ as follows:

Female.—Length 6 mm., antennae 4 mm., ovipositor sheath 2 mm.

Eyes barely as long as width of face, very slightly divergent below; malar space subequal to basal width of mandible; foveo-ocular line distinctly more than half as long as interfoveal line; diameter of ocellus much shorter than ocell-ocular line; thorax more slender, propodeum longer and less steeply sloping; pronotum laterally shagreened but not punctate; mesoscutum less distinctly punctate, notauli shallow; scutellar carinae obsolete except at base; mesopleurum not striate above, punctation very fine; radius only slightly

[4] Proc. U. S. Nat. Mus., vol. 53, 1917, p. 511.

beyond middle of stigma; nervellus nearly perpendicular, slightly broken not far below middle; hind basitarsus hardly three-fifths as long as tibia and distinctly shorter than rest of joints combined; postpetiole barely thicker than petiole; second tergite two and a half times as long as broad at base, sides divergent.

Pale yellowish testaceous; occiput, vertex, and frons fuscous; orbits yellow; antennae fuscous with apices of joints of basal half narrowly pale; stigma largely whitish, other veins brown; legs somewhat infuscate; prescutum entirely and areas between scutellum and wing bases fuscous, as are also basal half of second tergite and more or less of sixth and seventh.

Male.—Eyes divergent below; diameter of ocellus distinctly shorter than ocell-ocular line; second tergite little more than twice as long as broad at base; color like female.

CREMASTUS RHYACIONIAE, new species

Very similar to *epagoges* Cushman, to which species the female runs in my key to North American species. Because of its large eyes and ocelli the male runs to *forbesii* Weed.

Female.—6–7.5 mm. (type 7 mm.).

Differs from *epagoges* female principally as follows: Face distinctly narrower than height of eye; malar space shorter than basal width of mandible; pronotum laterally polished, very weakly foveolate at bottom of impression (in *epagoges* the pronotum is shagreened laterally and strongly foveolate in impression); mesoscutum more finely and sparsely punctate, notauli weaker; ovipositor sheath a little more than twice as long as first tergite.

Face black medially; orbits uninterrupted yellow but much narrower than in *epagoges*, especially at top of eye; thorax entirely black except humeral angle of pronotum which is brownish and basal part of scutellar carinae which is whitish (sometimes the scutellum is more or less reddish brown); stigma broadly pale along anterior margin.

Male.—Differs from *epagoges* male as follows: Eyes much longer than width of face; malar space hardly half as long as basal width of mandible; diameter of ocelli more than half as long as postocellar line and nearly twice ocell-ocular line.

Host.—*Rhyacionia frustrana* var. *bushnelli* Busck.

Type locality.—Pactola, S. Dak.

Type.—Cat. No. 41997, U.S.N.M.

Seven females and two males reared by L. G. Baumhofer from the host in *Pinus ponderosa* under Hopkins U. S. No. 17511.

CREMASTUS PTEROPHORI, new species

Like *rhyacioniae* this species runs in my key to *epagoges* Cushman in the female and to *forbesii* Weed in the male. In size of ocelli the female agrees better with *forbesii.*

Female.—Length 10 mm.; antennae 7 mm.; ovipositor sheath 3.5 mm.

Head in frontal view very strongly transverse, eyes bulging and faintly, broadly emarginate within; face nearly as broad as height of eye, opaque, shagreened, and rather densely punctate, medially somewhat elevated, the elevation continuing on to clypeus, which is rather prominent, inflexed and strongly rounded at apex, shining and more sparsely punctate than face; malar space as long as basal width of mandible; temples very strongly receding, nearly flat; diameter of ocellus subequal to ocell-ocular line and two-thirds postocellar line. Thorax opaque shagreened and punctate, the punctures dense on mesoscutum, more sparse elsewhere; pronotum laterally and speculum subpolished; notauli well defined and foveolate, prescutum prominent; scutellum punctate opaque, laterally margined; propodeum subopaque, shagreened, and punctate, apically more or less transversely rugulose, combined areola and petiolar area of almost uniform width, the areola nearly as long as petiolar area; propodeal "neck" in dorsal view shallowly concave laterally, extending well beyond middle of coxae; cubitus and discoideus distinct beyond recurrent; nervellus obsoletely broken below middle. Abdomen slender; first segment barely longer than dorsal length of propodeum, dorsolateral carinae present before spiracles, postpetiole abruptly enlarged; second tergite about four times as long as broad at base, apaque striato-shagreened; tergites 3 to 6, opaque, shagreened, and punctate, third definitely less deep than fourth.

Black with thorax laterally and abdomen more or less obscure red. Head black with orbits completely, malar space, sides of clypeus and mandibles yellow, as is also the under side of scape and pedicel; antennae otherwise black with apices of flagellar joints more or less distinctly paler; ventral margin of pronotum, lateral margins of mesoscutum, scutellum, a streak on mesopleurum, metapleurum more or less, and all lateral sutures of thorax reddish, the mesoscutal and scutellar markings inclining to yellow; front and middle legs testaceous, their coxae and trochanters stramineous; hind leg largely blackish, the coxa at apex, trochanter, femur apically and tibia in middle pale; abdomen black and piceous red in the usual arrangement, the plica pale.

Male.—Eyes larger, face much narrower than height of eye, malar space about half basal width of mandible, diameter of ocellus as

long as postocellar line and nearly four times as long as ocell-ocular line. Face entirely and all thoracic markings yellow, the latter including the lateral aspect of the pronotum, the notauli and a median spot on mesoscutum; petiole laterally and lower edge of compressed portion of abdomen pale. In one of the males the thorax laterally and the abdomen are largely pale red, while the hind leg is black only on apex of tibia and tarsi.

Host.—Oidaematophorus kellicottii Fish.

Type locality.—Dane County, Wis.

Type.—Cat. No. 41996, U.S.N.M.

Two females and five males reared by F. P. Breakey during May and June, 1928.

Genus CREMASTUS Gravenhorst (=CREMASTIDEA Viereck) (new synonymy)

Cremastidea is said to differ from *Cremastus* Gravenhorst by the very short malar space and by the fact that the propodeum overlies the hind coxae to their middle.

The first character is subject to great variation in *Cremastus* and is sometimes a sexual difference; while the second is characteristic of typical *Cremastus*.

The genotype, *Cremastidea chinensis* Viereck, is a typical *Cremastus*.

(CREMASTIDEA CREMASTUS CHINENSIS (Viereck) (new combination)

In addition to the types the National Museum Collection contains six specimens reared by D. T. Fullaway at Kobe, Japan, as parasites of the rice borer, *Chilo simplex* Butler.

THERSILOCHUS PROVANCHERI Ashmead (=THERSILOCHUS PROVANCHERI Cushman)

In renaming Provancher's preoccupied *pallipes* I overlooked the fact that Ashmead had already done so.[5] Dalla Torre catalogued the Ashmead reference under *Porizon angularis* (Provancher).

ALLOPHRYS OCULATUS (Ashmead) (new combination)

Thersilochus oculatus ASHMEAD, Proc. Zool. Soc. London, 1895, p. 779, male.
Insurgus nigriceps ASHMEAD, Trans. Ent. Soc. London, 1900. p. 273, female. (New synonymy.)

The large, dorsally convergent eyes of *Allophrys* Foerster constitute a male secondary sexual character, the eyes of the female being of normal size and parallel within.

The association of the sexes is based on a series of specimens collected on the windward side of Grenada, West Indies, by H. H. Smith.

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[5] Bull. 1, Colo. Biol. Assn. 1890, p. 24.

Family BRACONIDAE

BRACHISTES MAGDALI (Cresson)

Calyptus magdali CRESSON, Psyche, vol. 2, 1878, p. 189.
Brachistes magdali BRUES, Bull. Wisc. Nat. Hist. Soc., vol. 8, 1910, p. 50. (New synonymy.)

Both Cresson's and Brues's types are from Massachusetts and both were reared from the same host, *Magdalis olyra* Herbst.

BRACHISTES STRIGITERGUM, new species

Of the same form as *B. magdali* (Cresson) but at once distinguishable by the strongly striate second tergite.

Female.—Length, 5.5 mm.; antennae, 5 mm.

Temples broad but distinctly narrower than eyes, which are distinctly bulging, especially behind; vertex and temples moderately densely and very finely punctate; face more coarsely and more densely so; clypeus coarsely confluently punctate; eyes shorter than in *magdali*, being only about a third longer than broad and little more than twice as long as malar space; basal two joints of flagellum equal in length and fully four times as long as thick at apex. Thorax polished laterally and ventrally, subpolished and densely pilose dorsally; pronotal groove, notauli, prepectal furrow and mesepisternal furrow foveolate; metapleurum rugose; propodeum coarsely rugose with a median carina basally and parallel carinae at apex, posterior angles prominent. Abdoment barely longer than thorax, the apical segments strongly retracted; first tergite broader than long, striate, with prominent dorsal carinae, between which the surface basally is deeply concave; second tergite longitudinally striate throughout, the striae not converging behind; other tergites smooth and polished, second suture not foveolate; sheath about as long as abdomen.

Black; palpi and legs testaceous; all tarsi and hind tibia brownish; antennae black, piceous at base, wings very dilutely infumate.

Type locality.—Duncan, B. C.

Type.—Cat. No. 41998, U.S.N.M.

Paratypes.—Two are deposited in the Canadian national collection.

Four females reared June 8, July 13 and 20, 1928, by W. G. Mathers from a fir tree, under his number 17241, lots 1, 11, and 13.

MICROBRACON LENDICIVORUS, new species

Because of the deep foveolate tergal sutures and transverse furrows of the tergites it runs in Ashmead's[6] generic key to 4, but differs from the only genus falling there, *Glyptomorpha* Holmgren, in its

[6] Proc. U. S. Nat. Mus., vol. 23, 1900, p. 137.

lack of oblique grooves on tergites 2 to 4. Following the second alternate of the first couplet it runs, because of the median carina of the propodeum, to *Tropidobracon* Ashmead (p. 139) and agrees fairly well with all the characters assigned to that genus. From apparently all species hitherto assigned to *Microbracon* it differs by the abdominal sculpture.

Female.—Length 4 mm.

Head strongly transverse, the temples sharply convexly sloping; eyes bulging, nearly hemispherical; face fully a half wider than length of eye; malar space a half longer than basal width of mandible and subequal to width of mouth opening; antennae as long as body, slender, tapering from before middle; first joint of flagellum nearly three times as long as thick and very slightly longer than second, all other joints much longer than thick, those near apex fully twice as long as thick. Thorax short ovate, smooth and polished; notauli distinct; scutellum flat, fovea foveolate; propodeum with a median carina, high at apex, but not reaching base; radius far before middle of stigma; alar areolet rather short, first intercubitus and second abscissa of radius about equal in length; hind tarsus slightly shorter than tibia, basal joint as long as rest combined, third and fifth equal. Abdomen broad with a median ridge on tergites 2 to 6, originating in a triangular embossed area at base of second and becoming weaker toward apex, each of these tergites except second with a subapical, transverse, more or less distinctly foveolate furrow, sutures foveolate, second and third longitudinally rugose, third with oblique foveolate grooves basally; fourth to sixth opaque punctate; triangular area of first tergite elevated subapically, coarsely rugose behind elevation, smooth before; tergites beyond sixth much less heavily chitinized; ovipositor about a fourth longer than body, slender.

Head and thorax testaceous; antennae blackish, scape and pedicel reddish; wings hyaline, venation brown, tegulae stramineous; front and middle legs stramineous, apices of tarsi blackish; hind leg testaceous, coxa somewhat piceous above; tibia fuscous toward apex, apical joint of tarsus black; abdomen piceous basally, yellowish white apically; first tergite testaceous basally, very narrowly whitish at apex; second and third tergites laterally and the third apically whitish; tergites 4 to 6 narrowly piceous basally; sheath stramineous, blackish at base and apex, pubescence black.

Male.—Median ridge of abdomen very faint; only first five tergites heavily chitinized and sculptured, the sixth smooth polished and without subapical groove; tergites 4 and 5 longitudinally striate but more finely so than 2 and 3; white color confined to narrow apical and lateral bands on tergites 2 to 5.

Type locality.—Los Banos, Luzon, Philippine Islands.

Host.—Midge maggots on *Ficus nota* Blanco.

Type.—Cat. No. 41999, U.S.N.M.

Described from one female and four males reared January 12–15, 1921, by F. X. Williams.

MICROBRACON UICHANCOI, new species

Closely related to *lendicivorus* Cushman, from the foregoing description of which it differs as follows: Smaller; width of face less than one and a half times as long as diameter of eye; malar space subequal to basal width of mandible and much shorter than width of mouth opening; antennae filiform, not tapering from before middle, subapical joints distinctly less than twice as long as thick; basal joint of hind tarsus not so long as rest combined, third distinctly longer than fifth; median ridge of abdomen fading out on fourth tergite; second tergite irregularly rugose, others opaque punctate. Head and thorax paler; stigma stramineous; hind coxa entirely pale testaceous; abdomen nearly uniform pale testaceous, apices of tergites only slightly paler, suturiform articulation and sometimes a stain on each side of middle of second tergite blackish; sheath only slightly paler in middle.

Male.—Except sexually like female with abdominal sculpture less well defined.

Type locality.—Los Banos, Luzon, Philippine Islands.

Type.—Cat. No. 42000, U.S.N.M.

Three females and two males apparently reared by L. B. Uichanco, the females under Accession No. 18343, College of Agriculture, University of the Philippines, and the males from Mount Maquiling, Luzon, under Accession No. 18152.

Family AULACIDAE

PYCNAULACUS, new genus

Running this genus in Kieffer's key to genera[7] I am somewhat uncertain as to which alternate of the first couplet to follow because of the presence of a trace of the second intercubitus on the radius. Considering the wing to have three cubital cells it runs to couplet 4, where it agrees with the first alternate in the apically open second cubital cell, but disagrees in its possession of discal veins in the hind wing. Under couplet 5 it agrees with both characters attributed to *Micraulacinus* Kieffer. Following the lead of the second alternate of couplet 1 it agrees with neither alternate of couplet 9 because the

[7] Das Tierreich, Lief. 30, 1912, p. 344.

claws are entirely toothless. Of the genera beyond this point it agrees best with *Odontaulacus* Kieffer, from which it differs, in addition to its lack of claw teeth, in its short ovipositor and the lack of ovipositor guides on the hind coxae.

Frons convex, without scrobes or carinae; occipital carina effaced; eyes bare; pronotum with anterior margins rounded; prescutum with a shallow median fovea anteriorly, the lobes rounded; propodeum strongly elevated; stigma very broad with radius beyond middle; second intercubitus represented by a very short stub on radius; third intercubitus very largely hyaline; first recurrent about two-thirds its length before first intercubitus; first brachial cell as broad as long; hind wing with mediella, basella, cubitella, and nervellus somewhat developed, nervellus slightly antefurcal; hind coxae in female without ovipositor guides; claws without teeth; abdomen in female little longer than thorax, broadly truncate at apex; ovipositor sheath barely as long as abdomen.

Genotype.—*Pycnaulacus brevicaudus*, new species.

PYCNAULACUS BREVICAUDUS, new species

Female.—Length, 6 mm.; antennae, 4 mm.; ovipositor sheath, 2.5 mm.

Head smooth; malar space and sides of face very densely and finely punctate opaque; frons more sparsely and less finely punctate; first and third joints of flagellum subequal in length and about two-thirds as long as second joint, others gradually shorter, penultimate joint twice as long as thick; transverse rugae of prescutum very coarse, those of scutellum fine, lateral lobes of mesoscutum with only one prominent carina, this at about the middle with much finer rugosity before and behind; thorax laterally confused rugose, with the impressions of pronotum and mesopleurum shining and more distinctly rugose, upper division of metapleurum polished; propodeum concentrically rugose before, reticulately rugose behind, insertion of abdomen.

Head and thorax black; antennae black with scape pale testaceous and pedicel brown; mandibles dark piceous; legs beyond coxae testaceous; wings yellowish hyaline, immaculate; tegulae brownish testaceous; abdomen ferruginous more or less darkened toward apex, extreme base of petiole black.

Type locality.—Palo Alto, Calif.

Type.—Cat. No. 42160, U.S.N.M.

One specimen captured May 14, 1922, by E. O. Essig.

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